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(54) **IMAGE SHARING**

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G06F 15/16 (2006.01)
G06F 9/54 (2006.01)

(52) **U.S. Cl.**
CPC ***G06F 9/54*** (2013.01); *G06F 2209/541* (2013.01)

(58) **Field of Classification Search**
USPC 709/217–219, 20, 223, 229; 345/760; 715/234; 319/321
See application file for complete search history.

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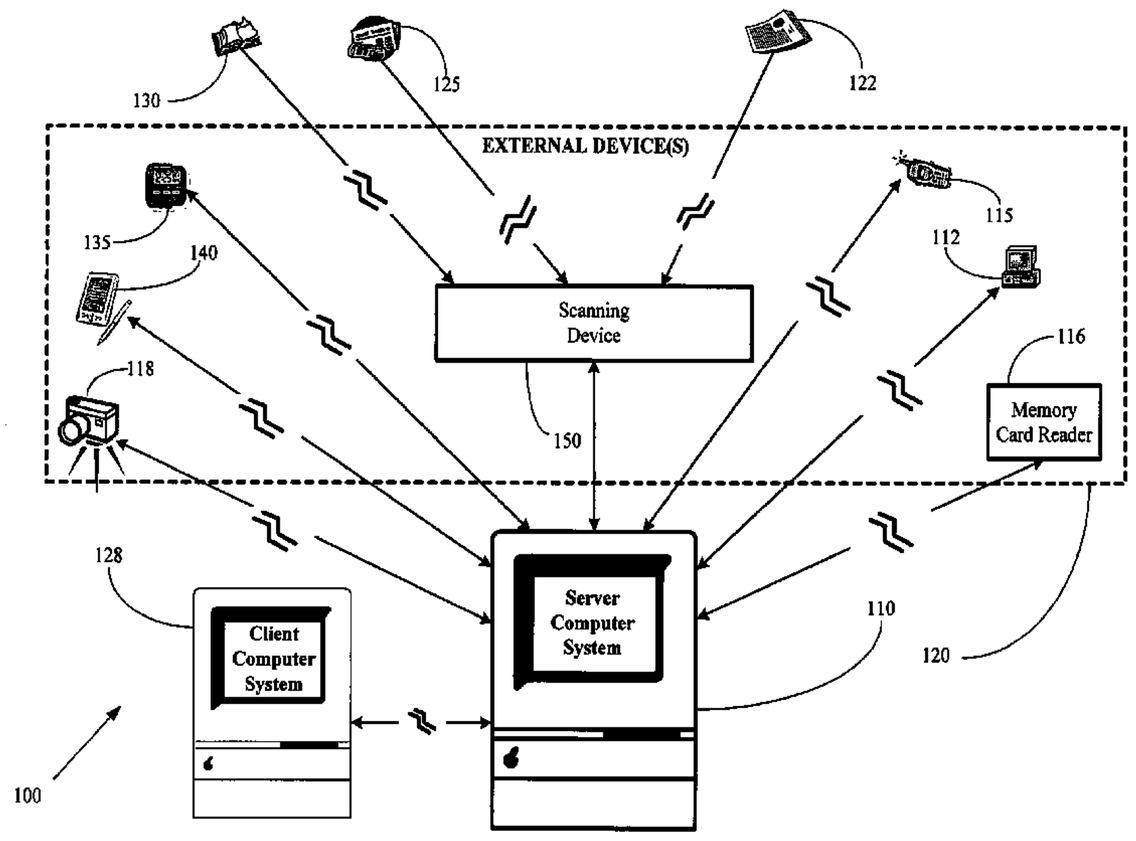
(57) **ABSTRACT**

A method, apparatus, and system for performing image sharing. A first computer is coupled to an external device capable of acquiring data. A second computer is coupled to the first computer. A direct access to data acquired by the external device is provided to the second computer.

15 Claims, 7 Drawing Sheets



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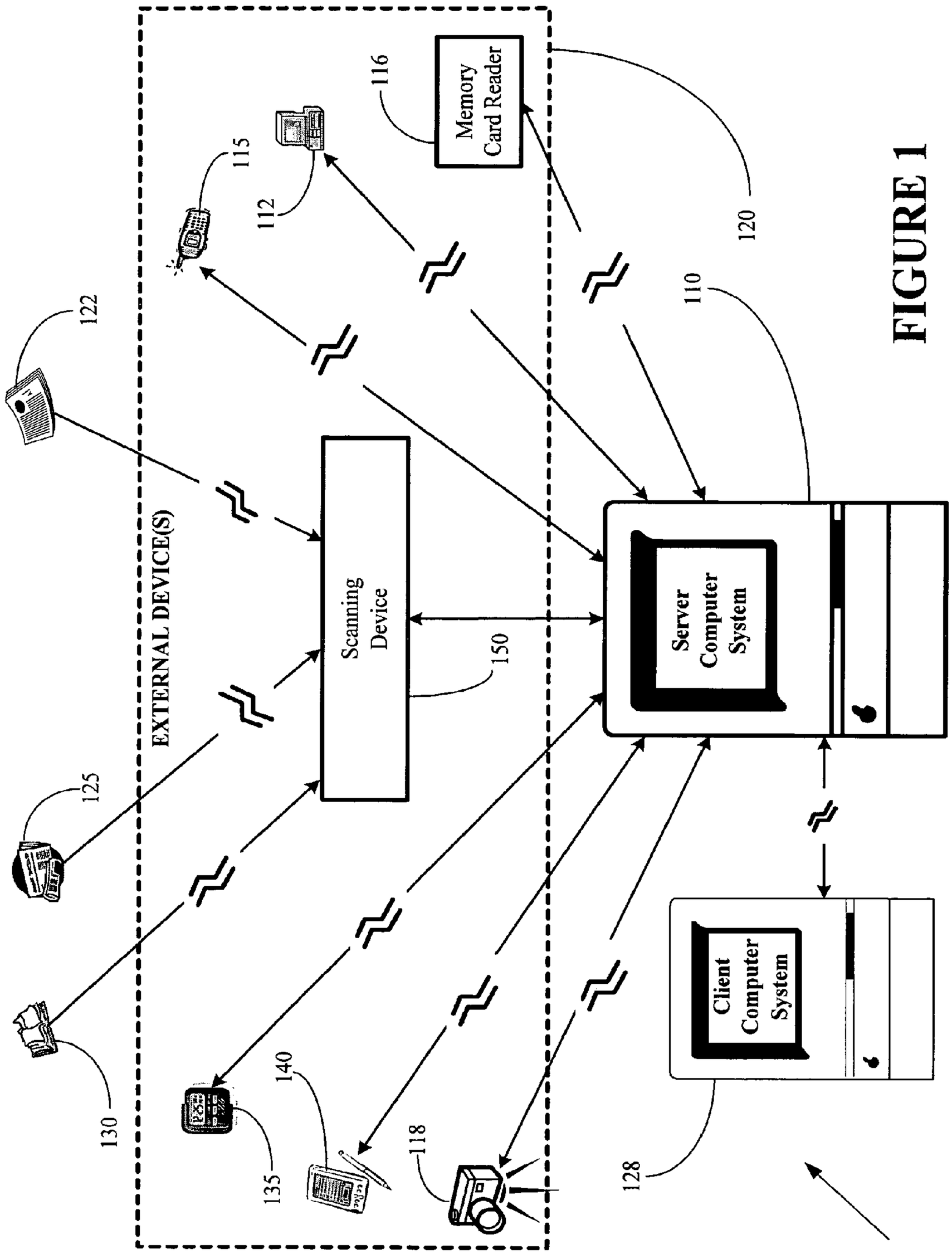
EXTERNAL DEVICE(S)
Memory Card Reader
116
115
112
120
122
110
Scanning Device
150
Server Computer System
125
130
140
135
118
128
Client Computer System
100

FIGURE 1

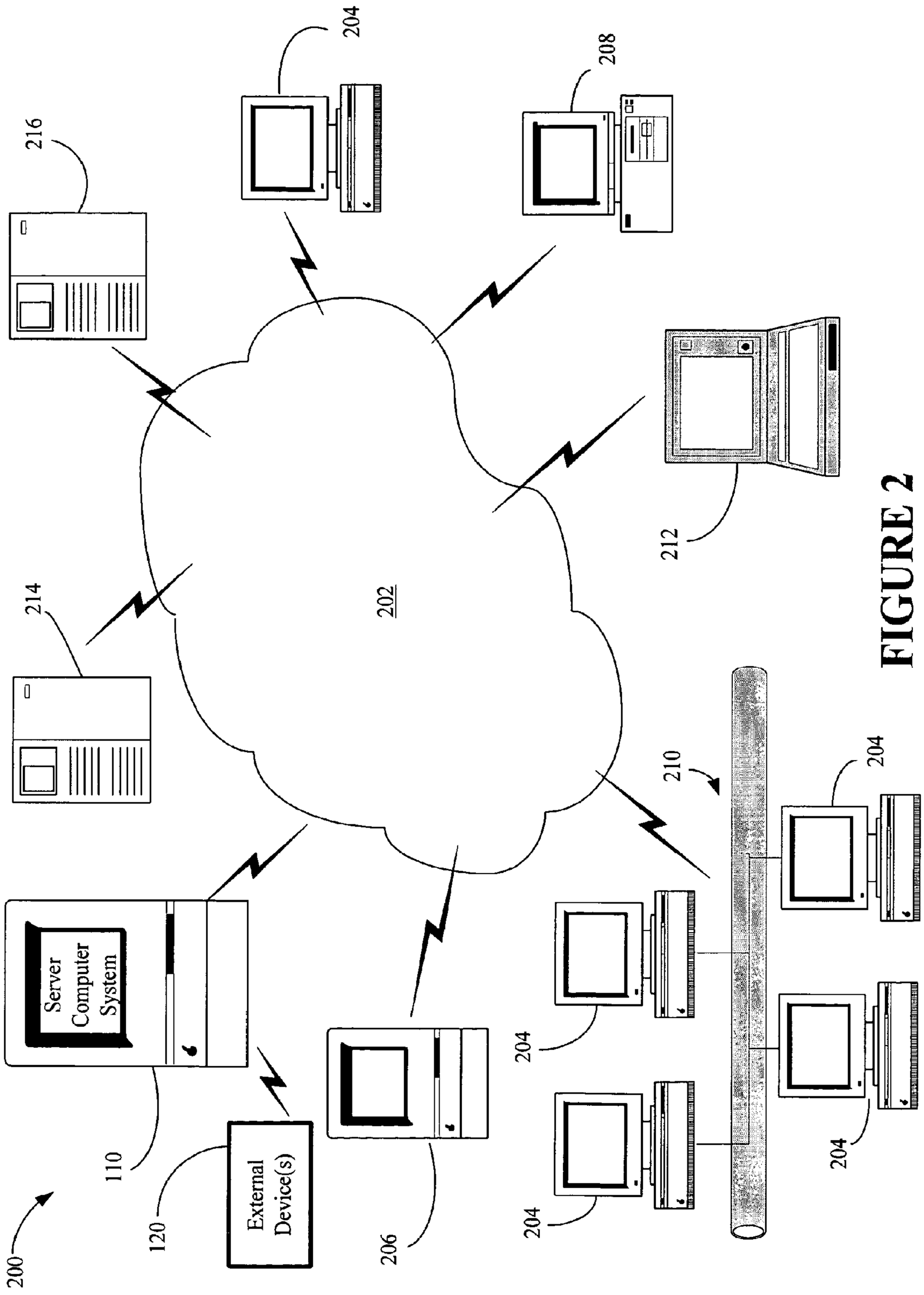
200
Server Computer System
110
120
External Device(s)
202
204
206
208
210
212
214
216

FIGURE 2

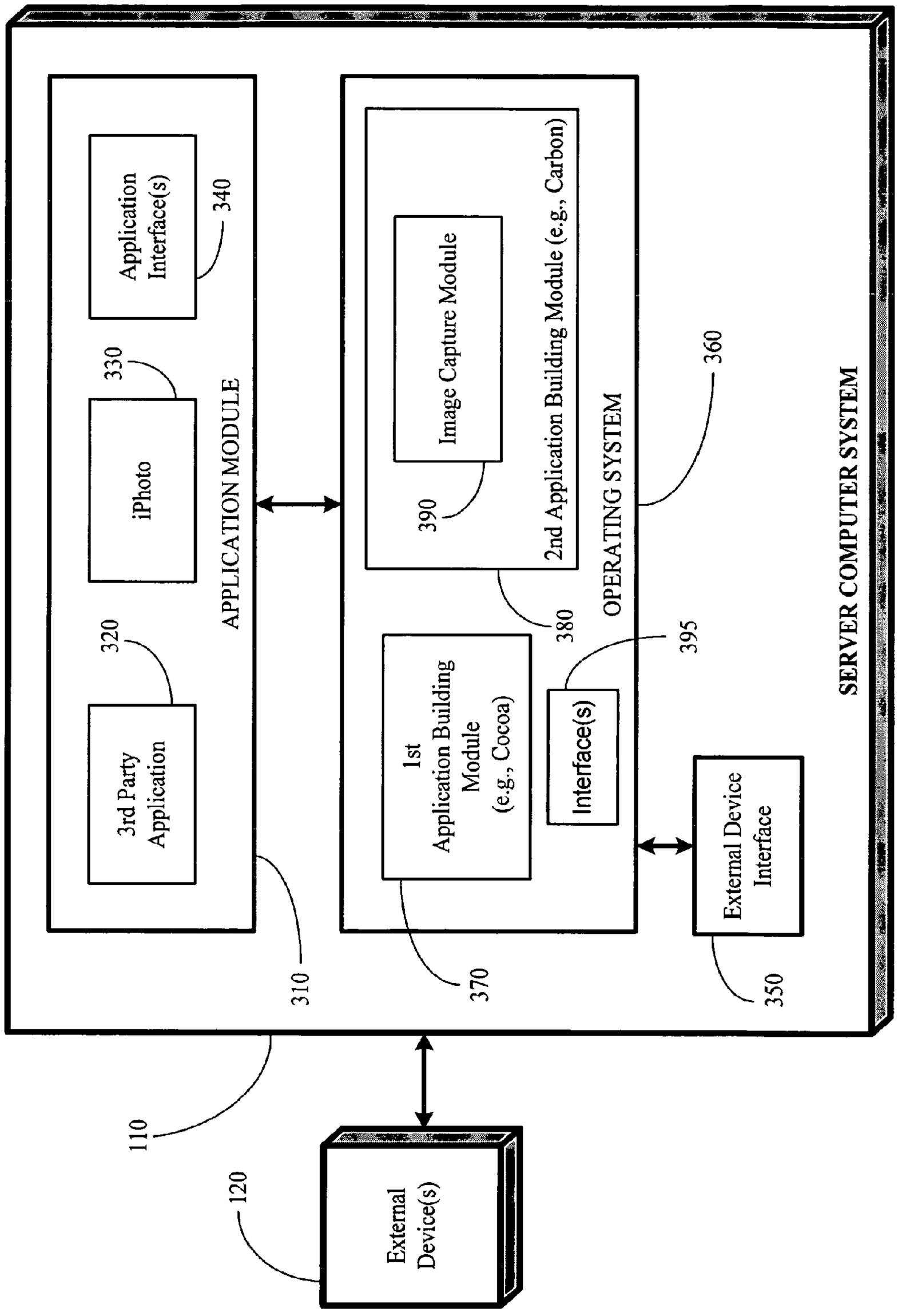
Application Interface(s)
340
APPLICATION MODULE
3rd Party Application
320
iPhoto
330
310
OPERATING SYSTEM
360
2nd Application Building Module (e.g., Carbon)
Image Capture Module
390
380
1st Application Building Module (e.g., Cocoa)
370
Interface(s)
395
External Device Interface
350
SERVER COMPUTER SYSTEM
110
External Device(s)
120

FIGURE 3

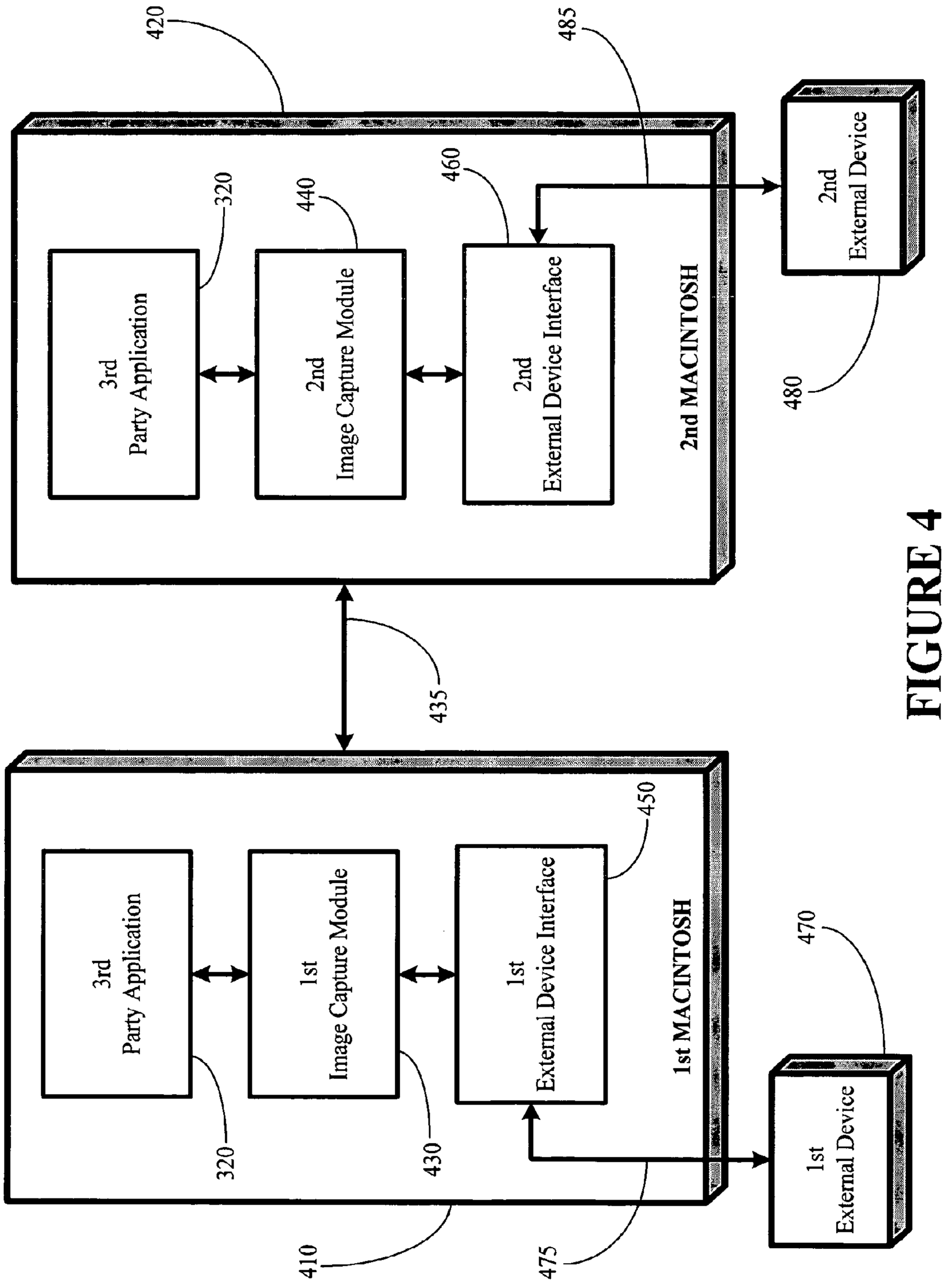
420
485
320
440
460
3rd Party Application
2nd Image Capture Module
2nd External Device Interface
2nd MACINTOSH
2nd External Device
480
435
450
3rd Party Application
1st Image Capture Module
1st External Device Interface
1st MACINTOSH
1st External Device
320
430
410
475
470

FIGURE 4

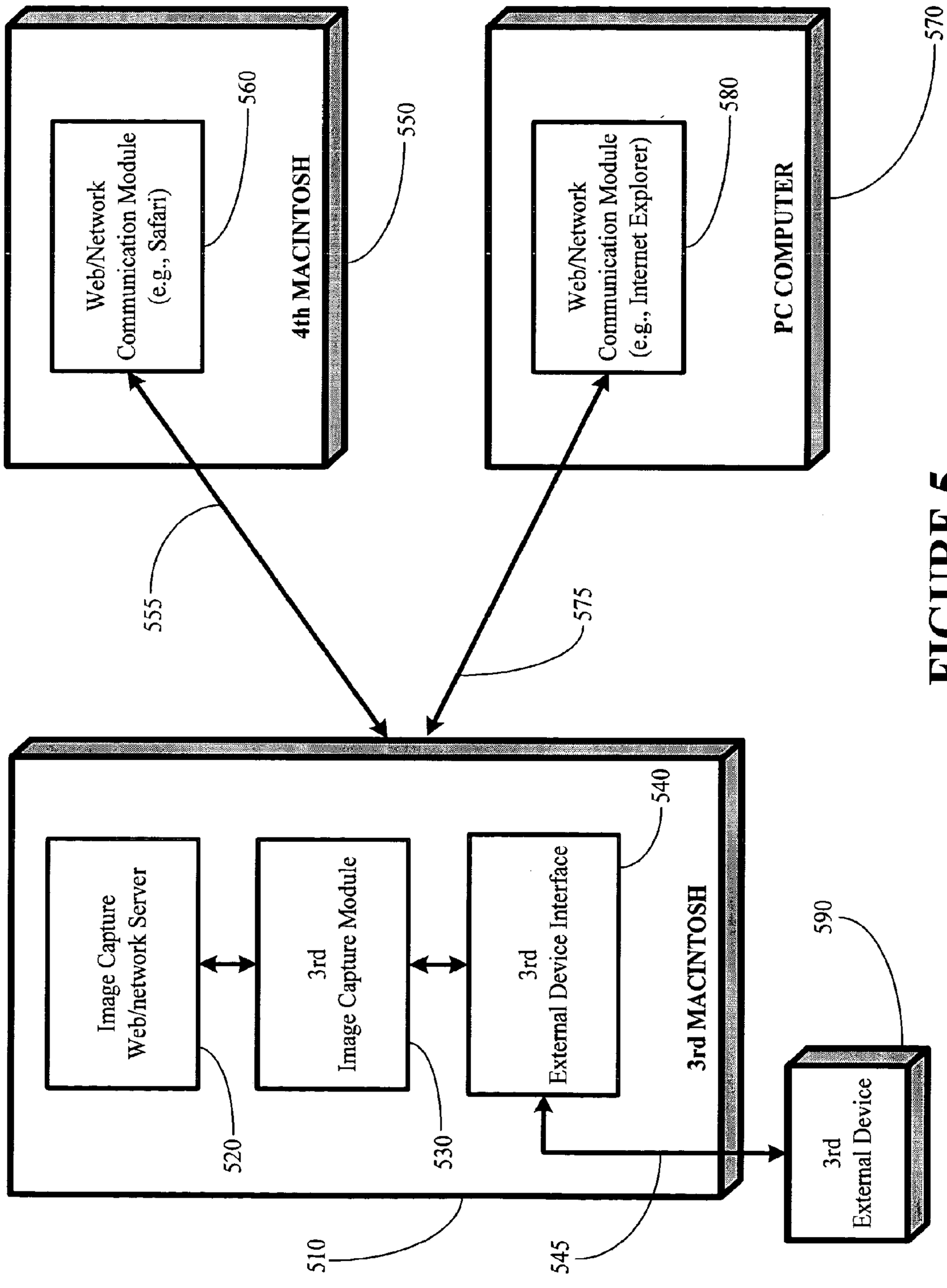
4th MACINTOSH
Web/Network Communication Module (e.g., Safari)
560
550
PC COMPUTER
Web/Network Communication Module (e.g., Internet Explorer)
580
570
555
575
3rd MACINTOSH
Image Capture Web/network Server
3rd Image Capture Module
3rd External Device Interface
520
530
540
510
545
3rd External Device
590

FIGURE 5

FIGURE 6

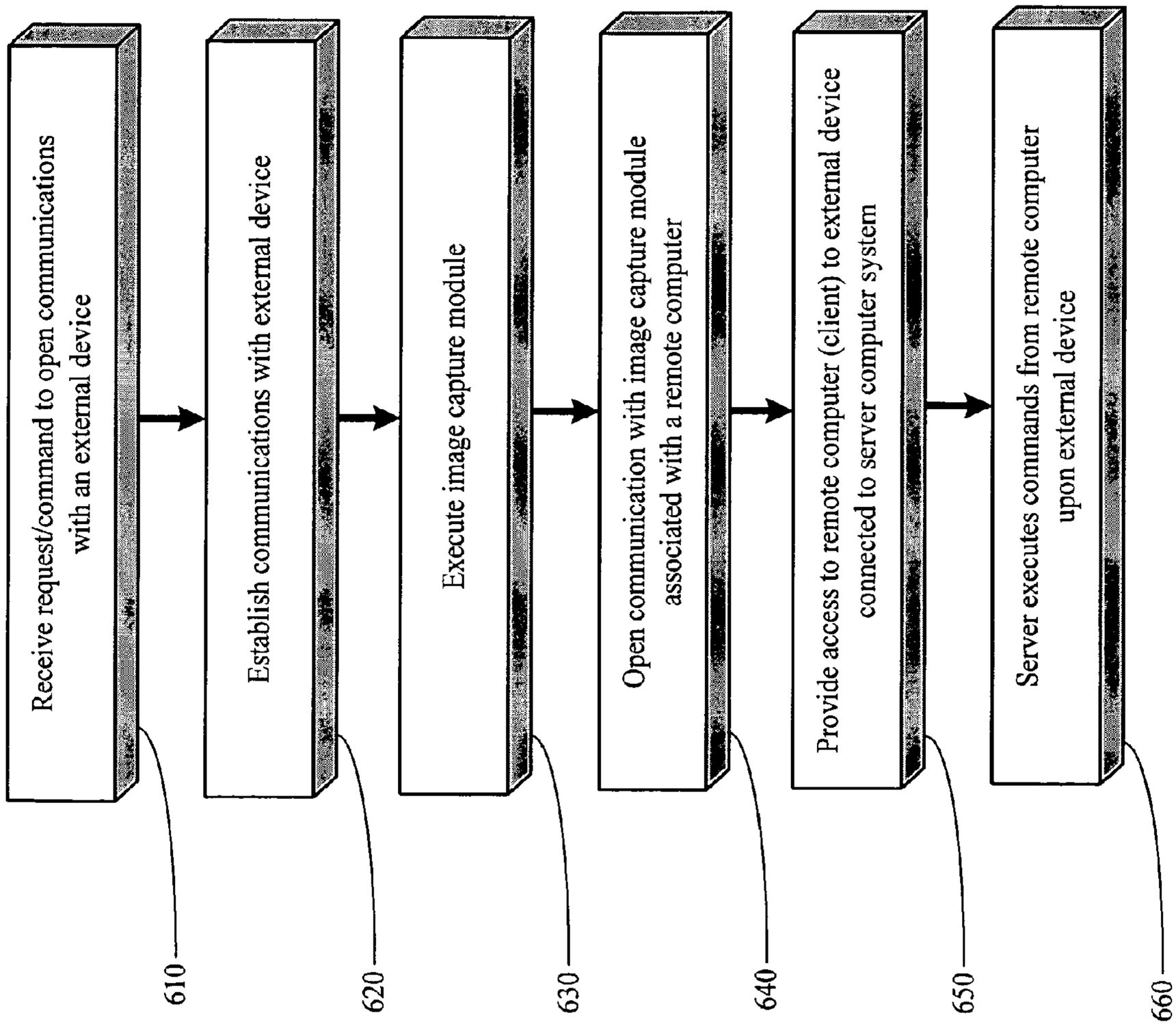
Receive request/command to open communications with an external device
Establish communications with external device
Execute image capture module
Open communication with image capture module associated with a remote computer
Provide access to remote computer (client) to external device connected to server computer system
Server executes commands from remote computer upon external device
610
620
630
640
650
660

FIGURE 7

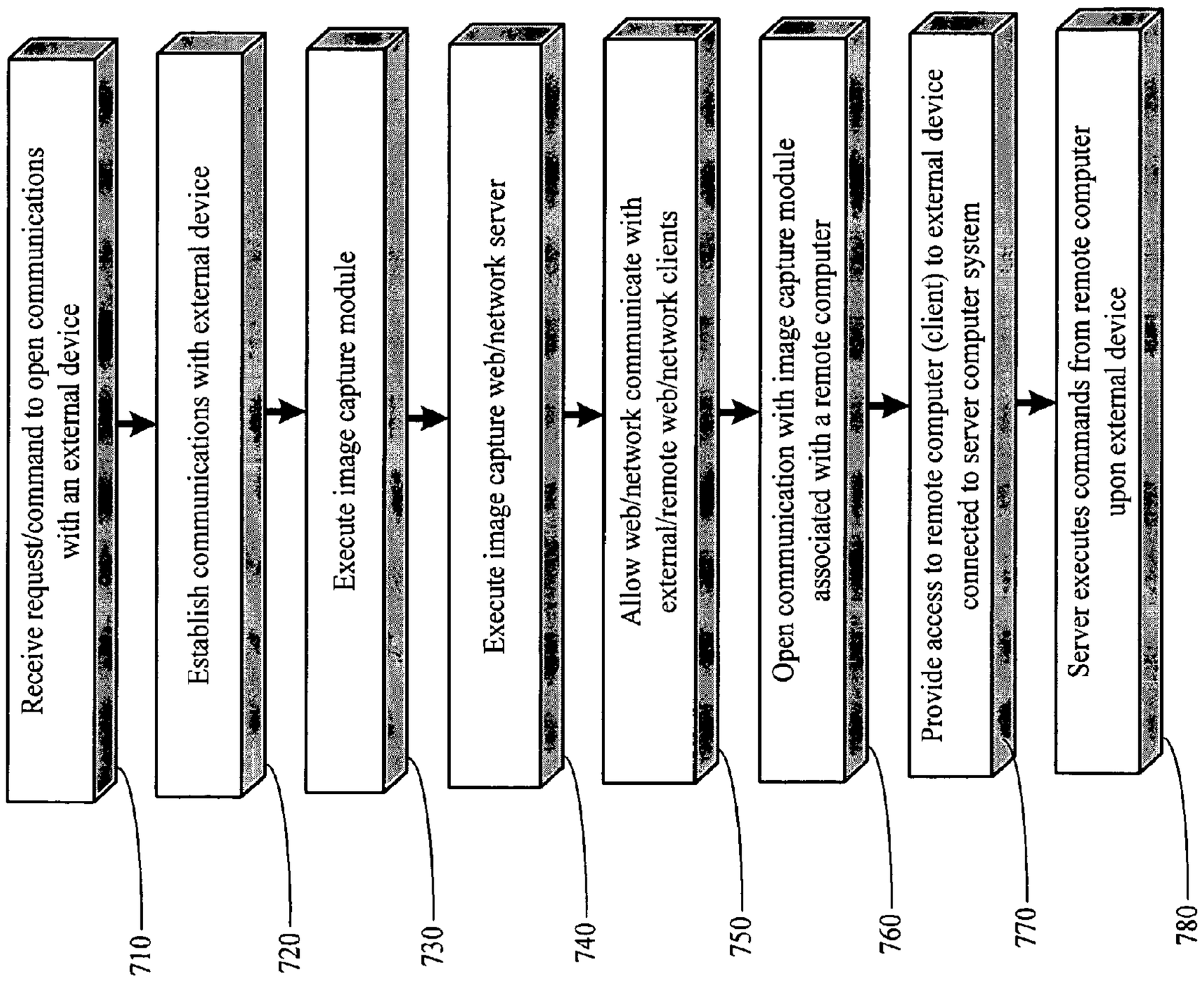
Receive request/command to open communications with an external device
710
Establish communications with external device
720
Execute image capture module
730
Execute image capture web/network server
740
Allow web/network communicate with external/remote web/network clients
750
Open communication with image capture module associated with a remote computer
760
Provide access to remote computer (client) to external device connected to server computer system
770
Server executes commands from remote computer upon external device
780

IMAGE SHARING

CLAIM OF BENEFIT TO PRIOR APPLICATIONS

This application is a divisional application of U.S. patent application Ser. No. 10/873,822, filed Jun. 22, 2004 now U.S. Pat. No. 8,266,241. U.S. patent application Ser. No. 10/873,822 is incorporated herein by reference.

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates generally to sharing of an image, and, more particularly, to a method, apparatus and system for providing remote access of images.

2. Description of the Related Art

There have been various advancements in the area of image capture technology for capturing images and processing them in a computer system. Image capture includes capturing of images processed by cameras and scanners. Generally, images are downloaded onto a computer, such as a Macintosh® computer system, and a user may browse through the various images captured by the camera or the scanner. The state-of-the-art generally calls for downloading the data relating to the capturing of images from a scanner or a camera. This requires the user to have immediate access to the computer system coupled to the camera or scanner, which requires access to the computer system. Additionally, the state-of-the-art generally requires that the computer coupled to the camera or the scanner have sufficient available resources to perform the downloading of the images. Therefore, processing and sharing various images can be made difficult.

There have also been various advancements in communications between computer systems. Networks, such as the Internet, intranets, or other private or public networks, are ubiquitous. In fact, many computers are connected to one or more networks at the same time. For example, a business may have hundreds or even thousands of computers coupled to its own private network, which was, at least initially, used primarily for storage and exchange of computer files. At least some of these same business computers may also be coupled to the interne. Further, with the development of wireless devices, ad hoc networks may also be formed with properly configured portable devices. Even telephonic devices, such as cellular phones, pagers and the like, may be coupled to one or more of these networks. Small businesses and homes are also often connected in similar arrangements.

All of this connectivity has naturally led to communications between various users over these networks. For example, electronic mail (e-mail), because of its usefulness, is now commonplace. Other communications and computer technology offer the possibility of accessing the content of one computer from a remote, second computer. Therefore, the natural evolution of technological advances may be directed toward providing a second computer system with capability to access an image that may be processed by a first computer system. State-of-the-art technology relating to such sharing calls for downloading an image onto a first computer and then providing digital data communications to a second computer system for performing image sharing. Developers have implemented Internet-based cameras ("web cams") that may acquire various images to be downloaded onto a first computer and then made accessible by a second computer. However, these systems generally provide for relatively low-resolution images that are downloaded onto a computer and then accessed by other computers.

Additionally, the second computer, which may be a client computer wherein the computer that acquires the images may be a server computer, may call for the implementation of on-line applications or device drivers that would communicate with the server computer. Additionally, the server computer may also need special drivers for allowing such communications. However, all of these implementations call for downloading various images onto the server computer and then make those images available for other computers. The industry generally lacks a more efficient manner of performing image file sharing.

The present invention is directed to overcoming or at least reducing one or more of the problems set forth above.

SUMMARY OF THE INVENTION

In one aspect of the present invention, a method is provided for performing image sharing. A first computer is coupled to an external device capable of acquiring data. A second computer is coupled to the first computer. A direct access to data acquired by the external device is provided to the second computer.

In another aspect of the present invention, a method is provided for performing image sharing. A first computer is coupled to an external device capable of acquiring data. A second computer is coupled to the first computer. A direct access to data acquired by the external device is provided to the second computer. A control of an operation of the external device is provided to the second computer through the first computer.

In another aspect of the present invention, a system is provided for performing image sharing. The system includes an external device that is capable of acquiring data. The system also includes a first computer coupled to the external device. The system also includes a second computer coupled to the first computer. The second computer is capable of directly accessing data acquired by the external device.

In still yet another aspect of the present invention, a computer readable program storage device encoded with instructions is provided for performing image sharing. The computer readable program storage device encoded with instructions that, when executed by a computer, performs a method, which includes coupling a first computer to an external device capable of acquiring data, coupling a second computer to the first computer, and providing a direct access to data acquired by the external device to the second computer.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention may be understood by reference to the following description taken in conjunction with the accompanying drawings, in which like reference numerals identify like elements, and in which:

FIG. **1** illustrates a system comprising a server computer system and external devices, in accordance with one embodiment of the present invention;

FIG. **2** illustrates a system for providing remote communications with the server computer system and the external devices of FIG. **1**, in accordance with one embodiment of the present invention;

FIG. **3** illustrates a block diagram depiction of the server computer system of FIG. **1**, in accordance with one embodiment of the present invention;

FIG. **4** illustrates a block diagram depiction of a plurality of computer systems interfacing with a plurality of external devices, in accordance with one embodiment of the present invention;

FIG. **5** illustrates a block diagram depiction of a plurality of computer systems interfacing with an external device, in accordance with an alternative embodiment of the present invention;

FIG. **6** illustrates a flowchart depiction of a method in accordance with one embodiment of the present invention; and

FIG. **7** illustrates a flowchart depiction of a method in accordance with an alternative embodiment of the present invention.

While the invention is susceptible to various modifications and alternative forms, specific embodiments thereof have been shown by way of example in the drawings and are herein described in detail. It should be understood, however, that the description herein of specific embodiments is not intended to limit the invention to the particular forms disclosed, but on the contrary, the intention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the invention as defined by the appended claims.

DETAILED DESCRIPTION OF SPECIFIC EMBODIMENTS

Illustrative embodiments of the invention are described below. In the interest of clarity, not all features of an actual implementation are described in this specification. It will of course be appreciated that in the development of any such actual embodiment, numerous implementation-specific decisions must be made to achieve the developers' specific goals, such as compliance with system-related and business-related constraints, which will vary from one implementation to another. Moreover, it will be appreciated that such a development effort might be complex and time-consuming, but would nevertheless be a routine undertaking for those of ordinary skill in the art having the benefit of this disclosure.

Embodiments of the present invention call for providing an image content sharing protocol for sharing images across a plurality of computer systems. Embodiments of the present invention provide for electronically coupling an image accessing device, which may be a scanner or a camera, and interfacing it with a first computer. The first computer may in turn be linked to a second computer via a remote network protocol, such as an Internet, intranet, a local-area network (LAN), a wide-area network (WAN), or any other type of computer communications protocol. The operation or the accessing of images provided by the image accessing device, such as a camera or scanner, may be directly performed by the second computer through the first computer. This may be performed without actually downloading the image captured by the image accessing device into the first computer. In other words, an image accessing device that is coupled to a first computer may be directly controlled by a second computer.

Additionally, embodiments of the present invention may provide for a special client application on a first computer system that is coupled to an image accessing device, wherein a second computer system may control or receive data from the image accessing device via a computer network, such as an internet web network. Therefore, embodiments of the present invention may provide the ability to a remote computer to access images while the images are still on the image accessing device. Embodiments of the present invention may also provide for controlling the operation of the image accessing device via a local computer that is coupled to the image sensing device. Embodiments of the present invention may be performed to access and process high-resolution still and/or moving images.

Turning now to FIG. **1**, a system **100** that depicts a server computer system **110** that is coupled to a plurality of external devices that may provide images to the server computer system **110** is illustrated. The system **100** in FIG. **1** illustrates a server computer system **110** that may receive data, such as image data from an external source **120**. The external source **120** may be inclusive of one or more sources of image data. The external source(s) **120** may include a scanning device **150**, a cellular or wireless phone **115**, a personal communication device (e.g., pager, text messenger, such as one offered by Blackberry®) **135**, a personal data assistant (PDA) **140**, a memory card reader **116**, a camera **118**, and/or other sources of data. A client computer system **128** may be communicatively coupled with the server computer system **110**. Utilizing embodiments of the present invention, the client computer system **128** is capable of directly accessing data from any one of the external devices **120** via the server computer system **110**, without having to download data into the server computer system **110**. Additionally, the client computer system **128** is capable of controlling the operations of the external devices **120** through the server computer system **110**.

The term image data may include a variety of data including, but not limited to, images and text. In one embodiment, the server computer system **110** and the client computer system **128** may be an Apple Macintosh® **204**. In an alternative embodiment, the server computer system **110** and/or the client computer system **128** may be an a classic Apple Mac® **206**, a Power Mac G4®, a Power Mac G5®, an iMac®, an IBM compatible personal computer (PC) **208**, and the like (shown in FIG. **2**).

The server computer system **110** may receive image data from a scanning device **150**, which may scan various image sources to provide the image data. The scanning device **150** may receive data, such as text data, from one or more sources. For example, the scanning device **150** may receive data from a simple text document **122**, a newspaper **125**, a book **130**, and/or other sources that may be scanned by the scanning device **150**. The server computer system **110** may also receive image data from a remote computer system **112**, a cellular or wireless phone **115**, a personal communication device (e.g., pager, text messenger, such as one offered by Blackberry®) **135**, a personal data assistant (PDA) **140**, a memory card reader **116**, a camera **118**, and/or the like. The server computer system **110** may provide the images to various other computers that may be electronically coupled to the server computer system **110** (as illustrated in FIG. **2**). Additionally, various remote computers may control the operation of one or more of the external devices **120** via the server computer system **110**.

Turning now to FIG. **2**, a system **200** is depicted that illustrates remote computer systems accessing data or controlling the operation of the external devices **120** via the server computer system **110**. The system **200** includes a plurality of computing devices coupled together through one or more network connections that allows for electronic communications with the server computer system **110**. For example, a plurality of devices may be coupled together via a private or public network, such as a local area network (LAN) or the Internet **202**. In an alternative embodiment, the plurality of devices may be coupled together via an Intranet system. The actual connection between the devices and the Internet **202** may take on one or more of any of a variety of forms, such as a network interface card (NIC), a modem, a digital subscriber line (DSL), a cable modem, a wireless connection, and the like. The devices coupled to the Internet **202** may include, for example, desktop computers or servers, such as an Apple Macintosh® **204**, a classic Apple Mac® **206**, a Power Mac

G4®, a Power Mac G5®, an iMac®, an IBM compatible personal computer (PC) **208**, and the like. Further, these desktop computers, such as the Apple Macintosh® **204**, may be coupled together via a smaller sub-LAN **210**, with the sub-LAN **210** being coupled to the Internet **202**. Portable devices, such as the Apple PowerBook® or iBook® **212**, may also be coupled to the Internet **202**, either directly or as part of the sub-LAN **210**. Further, other consumer devices, such as cell phones, personal data assistants (PDAs), network appliances, and other embedded devices may be connected to the Internet **202** to employ aspects of the present invention.

While the invention has been illustrated herein as being useful in a network environment, it also has application in other connected environments. For example, two or more of the devices described above may be coupled together via device-to-device connections, such as by hard cabling, radio frequency signals (e.g., 802.11(a), 802.11(b), 802.11(g), Bluetooth, or the like), infrared coupling, telephone lines and modems, or the like. The present invention may have application in any environment where two or more users are interconnected and capable of communicating with one another.

Those skilled in the art will appreciate that network connections may include a variety of other equipment, such as routers, switches, telephone modems, wireless devices, cable modems, digital subscriber lines, and the like. This type of equipment is not illustrated or discussed in detail herein so as to avoid unnecessarily obfuscating the present invention. For purposes of understanding the present invention, it is sufficient to recognize that additional conventional equipment of this type may be useful in establishing and maintaining communications between the various users. Using the exemplary system **200** illustrated in FIG. **2**, a remote computer (e.g., **204**, **206**, **208**, **212**, **214**, **216**) may access the images from one or more of the plurality of external devices **120** and/or control an operation of one or more of the external devices **120** via the server computer system **110**.

Turning now to FIG. **3**, a more detailed block diagram depiction of the server computer system **110** is illustrated. In one embodiment, the server computer system **110** may comprise an application module **310**, an operating system **360**, and an external device interface **350**. The application module **310** may comprise various software modules, such as a third party application **320**, an iPhoto software package **330**, and an application interface **340**. The application interface **340** allows for data-exchange including content data, status data, and command data, between the operating system **360** and the application module **310**. The third party application **320** may comprise various image data manipulation software packages.

The external device interface **350** is capable of receiving and sending data to and from the server computer system **110** and the external devices **120**. The external device interface **350** is capable of forwarding the data to the various modules associated with the operating system **360**. The operating system **360** comprises various interfaces **395** that are capable of respectively interfacing with the various applications in the application module **310**. The operating system **360** may also comprise a first and second application building module **370**, **380**, which may include exemplary modules, such as the COCOA® and the Carbon® modules offered by Apple Computer, Inc. These application building modules **370**, **380** may be used to develop an image capture module **390**. The image capture module **390** is capable of processing image data relating to external devices **120**. The image capture module **390** is also capable of providing access to an image acquired by the external device **120** to a remote computer communicatively coupled to the server computer system **110**. A second or remote computer system (e.g., **204**, **206**, **208**, **212**, etc.) may access the operation of the external devices **120** or the data from the external device(s) **120** via the image capture module **390** in the server computer system **110**. In other words, a remote computer may directly access the operation and the data relating to external devices **120** via the server computer system **110** without having to download data from the external devices **120** into the server computer system **110**. In one embodiment, various aspects of the third party application **320** and/or the iPhoto **330** application may be utilized via the application module **310** to communicate with the external devices **120** through the image capture module **390**. The operation of the iPhoto **330** may perform its operations without regard to whether the images that are processing are received locally or from a remote location via the remote computer system.

Utilizing embodiments of the present invention, the various applications in the application module **310** need not interface with the various protocols related to the external devices since a standard set of APIs that the applications of the application module **310** can be interfaced with the external devices **120** via the image capture module **390**. Therefore, various types of external devices **120** with various interface protocols may readily communicate with either the server computer system **110** or any other computer system that may be in data communications with the server computer system **110**.

Various blocks of the server computer system **110**, as illustrated in FIG. **3**, may be software, hardware, or firmware unit(s) that are standalone units or may be integrated into a computer system associated with the system **200**.

Turning now to FIG. **4**, a block diagram depiction of a multi-computer implementation of embodiments of the present invention is illustrated. A first Macintosh **410** may be in communication with a second Macintosh **420** via line **435**. Other computers systems may be implemented in the embodiment illustrated in FIG. **4** and remain within the scope and spirit of the present invention. The first Macintosh **410** and the second Macintosh **420** may communicate with one another via a system communications line **435**. The system communications line **435** may be a computer bus link, a dedicated hardware communications link, a telephone system communications link, a wireless communications link, or other communication links that may be implemented by those skilled in the art having benefit of the present disclosure.

The first Macintosh **410** comprises a third party application **320**, which may include a variety of types of applications that may be used to process and/or control data from the external device(s) **120** described above. The first Macintosh **410** also comprises a first image capture module **430** capable of capturing images from an external device **120**. The first Macintosh **410** may be communicatively coupled with a first external device **470**, wherein the first external device **470** may include one or more of scanning device **150**, remote computer system **112**, a cellular or wireless phone **115**, a personal communication device (e.g., pager, text messenger, such as one offered by Blackberry®) **135**, a personal data assistant (PDA) **140**, a memory card reader **116**, a camera **118**, and/or the like. Similarly, the second Macintosh **420** may be communicatively coupled to a second external device **480**, which may include one or more of a scanning device **150**, remote computer system **112**, a cellular or wireless phone **115**, a personal communication device (e.g., pager, text messenger, such as one offered by Blackberry®) **135**, a personal data assistant (PDA) **140**, a memory card reader **116**, a camera **118**, and/or the like.

A first external device interface **450** is capable of establishing a communication link with the first external device **470**.

The first external device interface **450** communicates with the first external device **470** via a communication line **475**, which in one embodiment is a system communications line **475**. The system communications line **475** may be a computer bus link, a dedicated hardware communications link, a telephone system communications link, a wireless communications link, or other communication links that may be implemented by those skilled in the art having benefit of the present disclosure. Various data may be accessed by the first Macintosh **410** from the first external device **470**. Additionally, the first Macintosh **410** may control the operation of the first external device **470** through one or more control parameters that may be sent to the first external device **470**.

Similarly, the second Macintosh **420** comprises at least one third party application **320**, which for example may be the iPhoto application described above. The third party application **320** may be in communication with a second image capture module **440**. The second image capture module **440** is capable of extracting data from the second external device **480** through the second external device interface **460**. The second external device interface **460** provides a communication link to receive and send data status and/or command signals to and from the second Macintosh **420** and the second external device **480**. The second external device interface **460** communicates with the second external device **480** via a communication connection represented by a communication line **485**. The communication line **485** may be a computer bus link, a dedicated hardware communications link, a telephone system communications link, a wireless communications link, or other communication links that may be implemented by those skilled in the art having benefit of the present disclosure.

The communication link **435** may provide for data communication between the first image capture module **430** and the second image capture module **440**. In this way, the first Macintosh **410** may directly communicate with the second external device **480** because of the communication provided by the first and second image capture modules **430**, **440**. Similarly, the second Macintosh **420** may directly communicate with the first external device **470** due to the connection between the first and second image capture modules **430**, **440**. The direct communication between the first Macintosh **410** and the second external device **480**, as well as the communication between the second Macintosh **420** and the first external device **470**, may include data communications with, and/or control of, the external devices **470**, **480**. For example, the first Macintosh **410** may directly access various images captured by the second external device **480** directly without data being downloaded into the second Macintosh **420**. Similarly, the second Macintosh **420** may access images from the first external device **470** directly without affecting the first Macintosh **410**. Therefore, the second Macintosh **420** may be located in a remote location, may actually download, and manipulate images directly from the first external device **470**.

Additionally, the second Macintosh **420** may also control the operation of the first external device **470**. Various control operations may be performed without having to download data from the first external device **470** to the first Macintosh **410** or from the second external device **480** to the second Macintosh **420**. Various software modules may be programmed into the first and second image capture modules **430**, **440** to enable the third party applications **320** in the Macintosh **410**, **420** to control and/or execute various image manipulating features directly from the first or second external devices **470**, **480**. Therefore, via the communications between the first and second image capture modules **430**, **440** remote control, and/or access of images from a variety of image accessing devices (i.e., external devices **120**) may be performed. Various blocks of the first and second Macintosh **410**, **420**, as illustrated in FIG. **4**, may be software, hardware, or firmware unit(s) that are standalone units or may be integrated into a computer system associated with the system **200**.

Turning now to FIG. **5**, a second embodiment of a multiple computer system configuration in accordance with embodiments of the present invention is illustrated. FIG. **5** illustrates a third Macintosh **510** in communication with a fourth Macintosh **550** and a Windows® compatible PC Computer System **570**. The use of the terms "Macintosh" and "Windows PC" are exemplary and for illustrative purposes and other computers systems may be utilized and remain within the spirit and scope of the present invention. The third Macintosh **510** is in communication with a third external device **590**, which may comprise one or more of a scanning device **150**, remote computer system **112**, a cellular or wireless phone **115**, a personal communication device (e.g., pager, text messenger, such as one offered by Blackberry®) **135**, a personal data assistant (PDA) **140**, a memory card reader **116**, a camera **118**, and/or the like.

The third Macintosh **510** comprises a third external device interface **540** via a line **545**. The line **545** may represent various communication links, such as a computer bus link, a dedicated hardware communications link, a telephone system communications link, a wireless communications link, or other communication links that may be implemented by those skilled in the art having benefit of the present disclosure. The third Macintosh **510** also comprises a third image capture module **530**. The third image capture module **530** is capable of extracting data from the third external device **590** via the third external device interface **540**.

The third Macintosh **510** also comprises an image capture web/network server **520**. The third Macintosh **510** may be in communication with the fourth Macintosh **550** via a line **555**, which may comprise a computer bus link, a dedicated hardware communications link, a telephone system communications link, a wireless communications link, or other communication links that may be implemented by those skilled in the art having benefit of the present disclosure. The third Macintosh **510** may also comprise a communication link to the Windows PC via a communication line **575**, which may be a computer bus link, a dedicated hardware communications link, a telephone system communications link, a wireless communications link, or other communication links that may be implemented by those skilled in the art having benefit of the present disclosure.

The image capture web/network server **520** provides for a link via a network or a web Internet-type system to other computer systems, such as the fourth Macintosh **550** and the Windows PC computer system **570**, to allow for image sharing. For example, the third image capture module **530** is able to control and/or extract data from the third external device **590**. The image capture web/network server **520** then provides data communications to the third image capture module **530**. In this way, remote computers, such as the fourth Macintosh **550** and the Windows PC **570** may directly control the third external device **590** and extract data. For example, the fourth Macintosh **550** and the Windows PC **570** may view pictures of a digital camera, which may be represented by "third external device **590**" block. This may be performed without downloading the pictures into the third Macintosh **510**.

The fourth Macintosh **550** may comprise web/network communication module **560**, such as the Safari® offered by Apple Computer, Inc. Likewise, the Windows PC computer

system **570** may comprise a web/network communication module **580**, such as the Internet Explorer® offered by Microsoft Corporation. Using the Safari® or the Internet Explorer®, the fourth Macintosh **550** and/or the PC computer **570** may access data from the third external device **590** and/or control the operation of the third external device **590**. This is enabled by the image capture web/network server **520** in conjunction with the third image capture module **530**. Therefore, any remote computer that has communication access to the third Macintosh **510** may directly control and/or receive images from the third external device **590**. This is generally performed without downloading images of the third external device **590** into the third Macintosh **510**.

Additionally, high resolution data may be provided to the fourth Macintosh **550** and the PC computer **570** in this manner. In one exemplary implementation of embodiments of the present invention, a reporter who has a third Macintosh **510** in the field may take pictures using the third external device **590**; meanwhile, a home-base operator may extract pictures from the field through a communication link to the third Macintosh **510**. Therefore, a person in a home office using the fourth Macintosh **550** or the PC computer **570** may access the content of the third external device **590**, which in this example is a camera. The person in the home office may also manipulate the operation of the camera in the field.

Turning now to FIG. **6**, a flow chart depiction of embodiments associated with the present invention is illustrated. The system **200** may receive a request or a command to open communications with an external device (block **610**). For example, the server computer system **110** may receive a request to open communications with the external device **120**. Based upon the request, the system **200** may establish communications with the external device **120** (block **620**). The system **200** may then execute operations of the image capture module **390** to access the external device **120** (block **630**). Based upon execution of the image capture module **390**, the system **200** communicates the image with the image capture module **390** relating to a remote computer. Therefore, as described in FIG. **4**, a remote computer may access the external device **120** coupled to a local computer (block **640**).

Upon opening communications with the image capture module of the remote computer, the system **200** then provides access to the external device **120** electronically coupled to the server (block **650**). The server then executes commands from the remote computer and/or acquires data for display to the remote computer (block **660**). Therefore, the user of the remote computer need not appreciate that control of the external device **120** is actually being performed through a different computer. In other words, the user of the remote computer may access images from the external device **120** (which is connected to another computer) and/or control the operations of the external device **120** without realizing that the external device **120** is not directly connected to the remote computer.

Turning now to FIG. **7**, an alternative embodiment of the implementation of the present invention is illustrated. The system **200** may receive a request or a command to open communications with an external device (block **710**). For example, the server computer system **110** may receive a request to open communications with the external device **120**. Based upon the request, the system **200** may then establish communications with the external device **120** (block **720**). The system **200** may then execute the image capture module **390** to access the external device **120** (block **730**). The system **200** then executes the image capture web/network server **520** (block **740**). The image capture web/network server **520** may provide a link to remote computers.

Upon the execution of the image capture web/network server **520**, the system **200** allows for the web/network communication with the external remote web/network clients. Other web-server type software may be used in conjunction with the image capture web/network server **520** (block **750**). Based upon this process, the system **200** then provides the image to the image capture module **390** associated with a remote computer. Therefore, as described in FIG. **4**, a remote computer may access the external device **120** coupled to a local computer (block **760**). Upon opening communications with the image capture module of the remote computer, the system **200** then provides access to the external device connected to the server (block **770**). The server computer then executes commands received from the remote computer and/or acquires data for display to the remote computer (block **780**). Therefore, the user of the remote computer may not even recognize that control of the external device **120** is actually performed by a different computer. In other words, the user of the remote computer may access images from the external device **120** (which is connected to another computer) and/or control the operations of the external device **120** without realizing that the external device **120** is not directly connected to the remote computer.

Utilizing embodiments of the present invention, a direct control and access to a remote image accessing device may be performed using a remote computer that is in communication with a local computer. Various applications on the remote computer may access data and/or control the operation of the various external devices **120**. The data may include any type of data such as audio data, video data, still-image data, and the like. The execution by the remote computer to access the external device on a local computer may be transparent as if the local computer were not there. Without having to download images from the external device into the local computer, users of other remote computers that are in communication with the local computer may browse through images, acquire images, and/or control the operation of the external devices. This provides the opportunity to conduct remote control access and sharing of data.

The particular embodiments disclosed above are illustrative only, as the invention may be modified and practiced in different but equivalent manners apparent to those skilled in the art having the benefit of the teachings herein. Furthermore, no limitations are intended to the details of construction or design herein shown, other than as described in the claims below. It is therefore evident that the particular embodiments disclosed above may be altered or modified and all such variations are considered within the scope and spirit of the invention. Accordingly, the protection sought herein is as set forth in the claims below.

What is claimed:

1. A non-transitory computer readable medium storing an image capture module for execution on a computing device, the image capture module comprising:

a first set of instructions for interfacing with a plurality of device drivers in order to control a plurality of image capture devices coupled to the computing device;

a second set of instructions for interfacing with each of a plurality of client applications executing on the computing device, said second set of instructions allowing each client application to control the image capture devices through the image capture module and the device drivers without any client application being required to be directly operable with any of the device drivers; and

a third set of instructions for interfacing with a remote image capture module executing on a remote computing device, said third set of instructions allowing a remote

client application executing on the remote computing device to control the image capture devices through the image capture module and the device drivers without the remote client application being required to be directly operable with any of the device drivers.

2. The non-transitory computer readable medium of claim **1**, wherein the second set of instructions comprises a set of APIs for use by the client applications to control the image capture devices.

3. The non-transitory computer readable medium of claim **1**, wherein the image capture module is part of an operating system for the computing device.

4. The non-transitory computer readable medium of claim **3**, wherein the operating system comprises a set of instructions for building at least a part of each of the plurality of client applications.

5. The non-transitory computer readable medium of claim **1**, wherein the plurality of image capture devices comprises at least one of a scanning device, a remote computer system, a cellular or wireless phone, a personal communication device, a personal data assistant, a memory card reader, or a camera.

6. A method performed by an image capture module of a computing device, the method comprising:

interfacing with a plurality of device drivers in order to control a plurality of image capture devices coupled to the computing device;

allowing each of a plurality of client applications executing on the computing device to control the image capture devices through the image capture module and the device drivers without any client application being required to be directly operable with any of the device drivers;

interfacing with a remote image capture module executing on a remote computing device; and

allowing a remote client application executing on the remote computing device to control the image capture devices through the image capture module and the device drivers without the remote client application being required to be directly operable with any of the device drivers.

7. The method of claim **6**, wherein said allowing each of a plurality of client applications to control the image capture devices further comprises providing a set of APIs for use by the client applications to control the image capture devices.

8. The method of claim **6**, wherein the image capture module is part of an operating system for the computing device.

9. The method of claim **8**, wherein the operating system comprises a set of instructions for building at least a part of each of the plurality of client applications.

10. The method of claim **6**, wherein the plurality of image capture devices comprises at least one of a scanning device, a remote computer system, a cellular or wireless phone, a personal communication device, a personal data assistant, a memory card reader, or a camera.

11. A computing device, comprising:

communications circuitry configured to couple to a plurality of image capture devices; and

processor circuitry configured to:

execute a plurality of client applications; and

execute an image capture module configured to:

interface with a plurality of device drivers in order to control the plurality of image capture devices;

allow each of the plurality of client applications to control the image capture devices through the image capture module and the device drivers without any client application being required to be directly operable with any of the device drivers;

interface with a remote image capture module executing on a remote computing device; and

allow a remote client application executing on the remote computing device to control the image capture devices through the image capture module and the device drivers without the remote client application being required to be directly operable with any of the device drivers.

12. The computing device of claim **11**, wherein said allowing each of the plurality of client applications to control the image capture devices further comprises providing a set of APIs for use by the client applications to control the image capture devices.

13. The computing device of claim **11**, wherein the processor circuitry is further configured to execute an operating system for the computing device, the operating system comprising the image capture module.

14. The computing device of claim **13**, wherein the operating system comprises a set of instructions for building at least a part of each of the plurality of client applications.

15. The computing device of claim **11**, wherein the plurality of image capture devices comprises at least one of a scanning device, a remote computer system, a cellular or wireless phone, a personal communication device, a personal data assistant, a memory card reader, or a camera.

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